

REMARKS

Claims 1, 2, 5-12, 18-22, 49-51, 56, 57, 60, 65-82, 84, 89, 90, and 93 and 98-109 are pending in the application. Claims 1, 2, 5, 7, 10-12, 21, 49-51, 56-57, 60, 65-66, 68, 70-76, and 79 are amended. Claims 3, 4, 13-17, 23-48, 52-54, 58, 59, 61-64, 83, 86-88, 91, 92, and 94-97 are cancelled without prejudice or disclaimer thereto. Claims 98-109 are added, and no new matter has been added.

Claims 1-2, 5-12, 18-22, 49-51, 56-57, 60, 65-67, 69-70, 77-80, 82, 84, 89-90, and 93 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Hama. Claim 18 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Hama and in view of Jha. Claims 68 and 70 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hama and in view of Chase. Claims 71-76 and 81 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hama and in view of Kompella.

Applicants respectfully traverse these rejections in the following discussion.

I. THE CLAIMED INVENTION

An exemplary aspect of the claimed invention (e.g., as defined by amended claim 1) is directed to a frame transfer method in a network for transferring a data frame sent from a source on the network to a predetermined destination, including the steps of adding, to applied the data frame, an expansion tag containing information about forwarding to an egress edge node to the destination to make an expansion frame, and relaying the data frame based on the forwarding information of the added expansion tag to transfer the frame to the egress node by each node on the network.

Another exemplary aspect of the claimed invention (e.g., as defined by amended claim 2) is directed to a frame transfer method in a network for transferring a data frame sent from a source on the network to a predetermined destination, including the steps of adding, to applied the data frame, an expansion tag containing information about forwarding to an egress edge node to the destination and information about customers to which the source and the destination belong to make an expansion frame, and relaying the data frame based on the forwarding information of the added expansion tag to transfer the frame to the egress node by each node on the network.

Another exemplary aspect of the claimed invention (e.g., as defined by amended claim 49) is directed to a node in a network for transferring a data frame sent from a source on the network to a predetermined destination, including frame processing element which adds, to applied the data frame, an expansion tag containing information about forwarding to an egress edge node to the destination to make an expansion frame, and switch element which receives the expansion frame to transfer the frame to a path to the egress node based on the forwarding information of the expansion tag.

Another exemplary aspect of the claimed invention (e.g., as defined by amended claim 50) is directed to a node in a network for transferring a data frame sent from a source on the network to a predetermined destination, including frame processing element which adds, to the data frame, an expansion tag containing information about forwarding of an ingress node which has received the frame to make an expansion frame, when applied the data frame is a frame to be broadcast, and switch element which receives the expansion frame to transfer the frame to a path to each node on the network based on the forwarding information of the expansion tag.

Another exemplary aspect of the claimed invention (e.g., as defined by amended claim 51) is directed to a node in a network for transferring a data frame sent from a source on the network to a predetermined destination, including frame processing element which adds, to applied the data frame, an expansion tag containing information about forwarding to an egress edge node to the destination and customer information of the destination to make an expansion frame, and switch element which receives the expansion frame to transfer the frame to a path to the egress node based on the forwarding information of the expansion tag.

Another exemplary aspect of the claimed invention (e.g., as defined by amended claim 56) is directed to a node in a network for transferring a data frame sent from a source on the network to a predetermined destination, including switch element which receives an expansion frame with an expansion tag including information about forwarding to an egress edge node to the destination to transfer the frame to a path to the egress node based on the forwarding information of the expansion tag.

Another exemplary aspect of the claimed invention (e.g., as defined by amended claim 57) is directed to a node in a network for transferring a data frame sent from a source on the network to a predetermined destination, including a switch element which receives an expansion frame with an expansion tag including forwarding information of an ingress edge node which has received the frame to transfer the frame to a path to each node on the network based on the forwarding information of the expansion tag.

Another exemplary aspect of the claimed invention (e.g., as defined by amended claim 60) is directed to a node in a network for transferring a data frame sent from a source on the network to a predetermined destination, including a switch element which receives an expansion frame with an expansion tag including information about forwarding to an egress

edge node to the destination and customer information of the destination to transfer the frame to a path to the egress node based on the forwarding information of the expansion tag.

Another exemplary aspect of the claimed invention (e.g., as defined by amended claim 82) is directed to a network for transferring a data frame sent from a source on the network to a predetermined destination, a frame transfer program executed on a node in the network for controlling transfer of the data frame, including the functions of adding, to applied the data frame, an expansion tag containing information about forwarding to an egress edge node to the destination to make an expansion frame, and receiving the expansion frame to transfer the frame to a path to the egress node based on the forwarding information of the expansion tag.

Another exemplary aspect of the claimed invention (e.g., as defined by amended claim 84) is directed to a network for transferring a data frame sent from a source on the network to a predetermined destination, a frame transfer program executed on a node in the network for controlling transfer of the data frame, including the functions of adding, to applied the data frame, an expansion tag containing information about forwarding to an egress edge node to the destination and customer information of the destination to make an expansion frame, and receiving the expansion frame to transfer the frame to a path to the egress node based on the forwarding information of the expansion tag.

Another exemplary aspect of the claimed invention (e.g., as defined by amended claim 89) is directed to a network for transferring a data frame sent from a source on the network to a predetermined destination, a frame transfer program executed on a node in the network for controlling transfer of the data frame, including the function of receiving an expansion frame with an expansion tag including information about forwarding to an egress edge node

to the destination added to applied the data frame to transfer the frame to a path to the egress node based on the forwarding information of the expansion tag.

Another exemplary aspect of the claimed invention (e.g., as defined by amended claim 90) is directed to a network for transferring a data frame sent from a source on the network to a predetermined destination, a frame transfer program executed on a node in the network for controlling transfer of the data frame, including the function of receiving an expansion frame with an expansion tag including forwarding information of an ingress edge node which has received the frame added to applied the data frame to transfer the frame to a path to each node on the network based on the forwarding information of the expansion tag.

Another exemplary aspect of the claimed invention (e.g., as defined by amended claim 93) is directed to a network for transferring a data frame sent from a source on the network to a predetermined destination, a frame transfer program executed on a node in the network for controlling transfer of the data frame, including the function of receiving an expansion frame with an expansion tag including information about forwarding to an egress edge node to the destination and customer information of the destination added to applied the data frame to transfer the frame to a path to the egress node based on the forwarding information of the expansion tag.

Conventional Ethernet nodes determine an output port of an input Ethernet frame based on destination MAC address information. As a result of the destination MAC information being locally defined and 48 bits, every most requires an entry in a frame data base. In addition, a 48-bit complete matching search is required to determine an output port.

The claimed invention, however, includes, "an expansion tag containing information about forwarding to an egress edge node to the destination to make an expansion frame, and

relying the data frame based on the forwarding information of the added expansion tag to transfer the frame to the egress node by each node on the network,” as recited in claim 1.

This is important for speeding up and simplifying the search for the destination MAC address. (See the Application, page 4, lines 1-23) In addition, these frames can be compatible with an existing node and an expansion-tag-compatible node. (See the Application, page 50, lines 14-18)

II. THE ALLEGED PRIOR ART REFERENCES

On pages 2-12 of the Office Action, claims 1-2, 5-12, 18-22, 49-51, 56-57, 60, 65-67, 69-70, 77-80, 82, 84, 89-90, and 93 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Hama (U.S. Patent Application Publication No. 2004/0202171, now U.S. Patent Number 7,072,346). Applicants submit, however, there are features recited in the rejected claims that are neither disclosed nor suggested by Hama.

Hama is directed to a network and to an edge router. In particular, Hama attempts to provide a scalable VPN for a network having both VLANs and an MPLS network. (See Hama, Col. 9, Lines 49-54) Packets from the VLAN are converted to MPLS packets for a transmission, after which the MPLS packets are converted back into VLAN packets. (See Hama, Col. 9, Line 56-61) In particular, to convert the packet, subrouter 123i swaps a VPN label with a MPLS label as illustrated in FIG. 3. (See also Hama, Col. 10, Line 33-54) Therefore, the labels of Hama operate identically to Applicants’ Admitted prior art in FIG. 31 where destination MAC address 101 and source MAC address 102 store destination and source information. (See Application, page 2, lines 4-12)

The Examiner alleges, however, that Paragraph 20 and FIGS. 2 and 22 of Hama

discloses an expansion frame because “the MPLS header is assigned to the frame (adding, to applied said data frame, information about forwarding to an egress edge node said destination to make an expansion frame).” That is, the Examiner appears to read Hama’s prior art statement that MAC address M1, MAC source address M2, Tag M3, Type M4, and IP Packet M5 discloses or suggest an “expansion tag,” as recited in claim 1. In particular, the Examiner appears to read Tag M3 as an “expansion tag,” as recited in claim 1. However, contrary to the Examiner’s allegation, Tag M3 is a 4 byte tag and contains a tag protocol identifier, a user priority, a CFI, a VID, length, and a RIF. (See Hama, Col. 2, Lines 26-36) That is, Tag M3 is identical to Applicants’ Admitted prior art.

Contrary to the Examiner’s allegation, however, Applicants submits that claim 1 recites, *inter alia*, “an expansion tag containing information about forwarding to an egress edge node to said destination to make an expansion frame.” Hama, on the other hand, does not teach or suggest an expansion tag or an expansion frame. Instead, tag M3 does not expand and is, in fact, set to one size.

Further, tag M3 is not added as recited in claim 1. Instead, Hama tags, or assigns, an address to tag M3. (See Hama, Col. 2, Lines 19-23) That is, the tags already exist, and are rewritten or assigned, but not added. Indeed, FIG. 20 illustrates that tag M3 has a maximum size of 36 bytes.

Accordingly, because Hama does not disclose or suggest “adding, to applied said data frame, an expansion tag … to make an expansion frame,” as recited in claim 1, Hama does not disclose or suggest every feature as recite in independent claim 1. Furthermore, these features recited in independent claim 1 are also recited in independent claims 2, 49-51, 56, 57, 60, 82, 84, 89, 90, and 93. In addition, because claims 5-13 and 18-22 depend from

independent claim 1, and therefore contain all the limitations contained therein, claims 5-13 and 18-22 are also allowable. Similarly, because claims 65-67, 69-70, 77, and 79-80 depend from claim 49, and therefore contain all the limitations contained therein, claims 65-67, 69-70, 77, and 79-80 are also allowable.

Accordingly, whereas on page 12 of the Office Action, claim 18 is rejected under 35 U.S.C. §103(a) over Hama in view of Jha, neither Hama nor Jha teach or suggest “adding, to applied said data frame, an expansion tag ... to make an expansion frame,” as recited in amended independent claim 1, from which claim 8 depends. Accordingly, Hama and Jha, alone or in combination, fail to teach or suggest every element as claimed in claim 18.

Similarly, on page 13 of the Office Action, claims 68 and 70 are rejected under 35 U.S.C. §103(a) over Hama in view of Chase, neither Hama nor Chase teach or suggest “a frame converter for adding generated said expansion tag to applied said data frame,” as recited in amended independent claim 65, from which claims 68 and 70 depend.

Accordingly, Hama and Chase, alone or in combination, fail to teach or suggest every element as claimed in claims 68- and 70.

Similarly, on pages 13-16 of the Office Action, and in view of a phone conversation with the Examiner, claims 71-76, and 81 are rejected under 35 U.S.C. §103(a) over Hama in view of Kompella, neither Hama nor Kompella teach or suggest “a frame processing element which adds, to applied said data frame, an expansion tag,” as recited in amended independent claim 49, from which claims 71-76, and 81 depend. Accordingly, Hama and Kompella, alone or in combination, fail to teach or suggest every element as claimed in claims 71-76, and 81.

Therefore, Applicants respectfully request the Examiner to reconsider and withdraw

these rejections.

III. NEW CLAIMS

Applicants have added new claims 98-109 to claim additional features of the invention and to provide varied protection for the claimed invention because these claims are independently patentable because of the novel features recited therein.

New claim 98 recites, *inter alia*, a node configured to generate and transfer an Ethernet frame, the Ethernet frame having an expansion tag storage region that includes a plurality of expansion tags, an expansion tag information region containing information about a kind of the plurality of expansion tags, and an expansion tag identification region containing information according to the kind of the plurality of expansion tags. Applicants respectfully submits that new claim 98, and dependent claims 99-103, presents no new matter and are supported in the specification.

New claim 105 recites, *inter alia*, a node configured to generate and transfer an Ethernet frame, the Ethernet frame comprising a VLAN tag, the VLAN tag having a priority TAG region, a TPID region, a VLAN identification region, an expansion tag information region, and an expansion tag identification region. Applicants respectfully submits that new claim 105, and dependent claims 105-108, presents no new matter and are supported in the specification.

Applicants submits that new claims 98-109 are patentable over the cited references at least for analogous reasons to those set forth above with respect to claims 1, 2, 5-12, 18-22, 49-51, 56, 57, 60, 65-82, 84, 89, 90, and 93.

IV. FORMAL MATTERS AND CONCLUSION

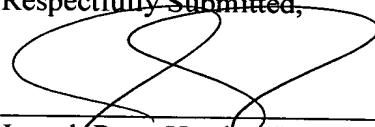
In view of the foregoing, Applicants submits that claims 1, 2, 5-12, 18-22, 49-51, 56, 57, 60, 65-82, 84, 89, 90, 93, and 98-109, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

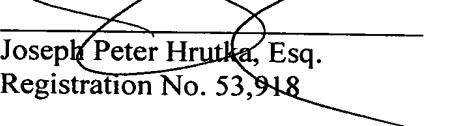
Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

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